



Sterling Reporter

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Fall 2005

Baltimore/Washington National Weather Service Hosts Unit Radar Committee Meeting

Steve Rogowski

On September 22nd, the Baltimore/Washington National Weather Service held a Unit Radar Committee (URC) Meeting. The Unit Radar Committee is comprised of representatives from NOAA, the FAA, and military sites under an agreement from several federal government agencies which combined resources for the installation of the Doppler Radar Network across the county.



Jim Lee outlying the goals of the URC meeting

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FY 2006 Annual Operating Plan

Jim Lee, Meteorologist-In-Charge

Program planning and program leadership are fundamental elements of managing NOAA's National Weather Service Baltimore/Washington Forecast Office. Our office's complex operations and maintenance are divided up into fifty-one program areas. Each of these programs assists in maintaining and ushering in new techniques, technology, and policy. These fifty-one programs are the basic building blocks of our office.

The fifty-one programs are individually led by all our dedicated staff members, with each staff member having at least one program leadership responsibility. Many of these fifty-one programs are closely related (e.g., the Marine and Coastal Flood Programs), which requires communication and coordination among program leaders.

Late this past summer, I asked our program leaders to develop programmatic goals which our office should accomplish in Fiscal Year 2006 (October 2005 through September 2006). I am pleased to report that last month, our office published the National Weather Service Baltimore/Washington Forecast Office Annual Operating Plan (AOP) for FY2006. This AOP contains programmatic goals which we will strive to accomplish this coming year, and will serve as our operating guidelines.

While each of the goals listed in our AOP are important, several goals stand out as being extremely critical for our office's success in FY2006:

- Develop a Cooperative Observer database
- Streamline our office intranet and Station Duty Manuals
- Develop flash flood and aviation weather event simulator cases to assist our training program
- Host Media and Emergency Manager Workshops

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Summer of 2005

Brian Guyer

This summer was quite warm and wet for the Mid Atlantic region. Temperatures were above normal in Baltimore and Washington for June, July, and August. Precipitation was also above normal for the three month period; however, July was unequivocally the leader of the three. Remnants of Tropical Storm Cindy brought a deluge of rainfall to the region in July, turning minor deficits left over from the month of June into surpluses. These surpluses dwindled by the end of August as drought conditions started to develop across the region.

The heat was on in June after a much cooler than normal May. Average temperatures in Baltimore and Washington rebounded from nearly 4° below normal in May to between 1° and 2° above normal in June. Interestingly, high temperatures at both stations were near normal in June, but well above normal low temperatures lead to above average temperatures overall. Precipitation at Baltimore was only slightly above normal while Washington was only slightly below normal. A round of heavy thunderstorms on the evening of the 29th brought nearly a third of the monthly rainfall in just a few hours at both stations.

July was steamy and stormy. Remnants from Tropical Storm Cindy on the 8th and 9th brought over two inches of rainfall to Baltimore and Washington. There were several other days when over an inch of rain fell at Baltimore. The most notable was another round of heavy thunderstorms on the 15th that dropped nearly three inches of rain. Like June, very warm low temperatures contributed greatly to above normal average temperatures. The mercury rose to 90° or higher nearly half the days in July at Baltimore and Washington. The combination of heat and humidity peaked between the 25th and 27th when heat indices rose to between 100° and 105° on all three days. The highest temperature of this summer at Baltimore was 96° on the 27th. The highest temperature of this summer at Washington was 97° on the 26th and the 27th.

August was very warm but much drier than July. High temperatures were only slightly above normal, but once again, low temperatures were much above normal. The average low temperature in Baltimore was a whopping 5° above normal for the month. Nearly half the days in August were 90° or higher once again in Washington with just under 10 days 90° or higher in Baltimore. The highest temperature of this summer was tied once again in Washington on the 4th and the 5th. Only one day brought both stations over an inch of rain from

thunderstorms on the 8th. This would be the last time over an inch of rain fell in a single day at either station for quite some time.

Overall, temperatures and precipitation were above normal for the three month period. At Washington, an average temperature of 78.8° ranked as the 14th warmest on record in the past 135 years. The total precipitation of 11.26" was above normal for the 135 year period but did not rank in the top 50 wettest summers. Conversely, at Baltimore, an average temperature of 76.4° ranked as the 33rd warmest on record in the past 135 years and the total precipitation of 16.22" ranked as the 24th wettest on record.

('Unit Radar Committee Meeting' continued from Page 1)

Close to twenty individuals, representing a dozen agencies attended the meeting. Military sites as far away as South Carolina and Illinois, which have forecast responsibilities for the local area, participated via teleconference.

During the three hour meeting, URC members discussed prior outages of the Sterling Doppler Radar, upcoming radar upgrades and modifications, and changes to the radar settings. Attendees were also educated about Baltimore/Washington National Weather Service operations, and were given a tour.

('FY 2006 Annual Operating Plan continued from Page 1)

- Host a Marine User's Committee
- Improve our 12-48 hour maximum/minimum temperature and probability of precipitation forecasts
- Hold biweekly LWX Program Leadership Team Meetings
- Host a public Open House in April 2006
- Revitalize the LWX SKYWARN Program, and
- Hold LWX Government Performance and Review Act reviews quarterly

I believe that developing an AOP and implementing it as our operating guideline is critical in our office's mission of achieving operational and organizational excellence. If you are interested in seeing our complete AOP for FY2006, please drop me a note at James.E.Lee@noaa.gov.

Fall Volunteer Program

We're proud to introduce our fall volunteers. They have been selected based on their submitted application, resume, transcript and brief introduction. The Volunteer Program is designed to allow those aiming to enter the field of meteorology to gain first-hand knowledge and experience of operations and research within and National Weather Service forecast office.



Casey Quell graduated from the University of North Carolina Asheville in May 2005,

with a degree in atmospheric science and minor in mathematics. Casey has been interested in weather since she was eleven years old, so she has grown up knowing that she wanted to pursue a career in meteorology. She interned with WUSA-TV 9 during the summer of 2004. Although Casey did not attend Virginia Tech, she is a very big VT football fan. She hopes to become a forecaster with the National Weather Service.

Adele Lichtenberger is a senior at Thomas Jefferson High School from Springfield, Virginia. At Thomas Jefferson, all seniors are required to do a research project, and Adele had wanted to do hers at a weather station because she is considering pursuing a career in meteorology. Her hobbies include camping, hiking, kayaking, and playing the piano. She is an active Girl Scout currently working towards earning her Gold Award and has played on the JV softball team for the past three years.



Currently Adele is working on a project with Steve Zubrick (Science and Operations Officer) that compares precipitable water measurements from weather balloons, GOES sounders, and

ground-based GPS sensors. She is also investigating how well GPS and weather balloon measurements compare before and after new radiosondes were developed.

Recent Tours at the Baltimore/Washington Forecast Office

Sarah Allen

During August, 14 people toured the office in August. This included students interested in pursuing meteorology and scouts earning their weather badge.

A total of 54 people toured the office in September, including 24 students. This included students interested in pursuing meteorology and scouts earning their weather badge. One such tour consisted of 15 home school students who are also members of a scout troop. (Pictured below watching the launch of a balloon to record metrological data)



Twenty people toured the office in October. One such tour was for the Australian Government Bureau of Meteorology.

Office tours are conducted Monday through Friday, from 10 AM to 1 PM and 5 PM to 7 PM. Tours are limited to 20 people, with students in the 5th grade or higher. Tours will be conducted on "fair" weather days only. If winter weather, severe weather, or flooding is expected on the day of a scheduled tour, the tour will be cancelled and/or rescheduled.

To schedule an office tour, please visit our web site at <http://www.erh.noaa.gov/lwx/wesh/tourrequest.htm> and complete the **Tour Request Form (PDF)** at the top of the page.

Weather Review – July/August 2005

James Brotherton

For the detailed report on these weather events, see the Storm Data monthly reports on our website at:

<http://www.erh.noaa.gov/lwx/Storms/Strmdata/index.htm>

July:

One of the most notable events of the summer occurred on the 7th and 8th of the month, as the remnants of Tropical Storm Cindy moved across the mid-Atlantic and mid-Appalachian regions. This weather system caused flash flooding and severe thunderstorms. A swath of heavy rainfall, with totals up to seven inches, occurred across portions of north-central VA, eastern WV, and central MD between the 7th and 8th. There were also several reports of funnel cloud sightings, but no tornadoes were confirmed by NWS survey teams. Flooding was reported in the Northwest portion of Washington DC. Flash flooding occurred in the Butler area of Baltimore County on the 7th, with roads reported under water. Roads were under water along the Monocacy River in Frederick County, MD. Doppler radar estimated two to four inches of rain had fallen in only a couple hours. A large sinkhole formed due to heavy rainfall near Laurel in Prince Georges County, MD. The sinkhole measured 16 feet wide and 10 feet deep, and occurred on the Baltimore/Washington Parkway.

On the 18th, hot and very humid air engulfed portions of the area. Heat index values reached up to 110 degrees Fahrenheit during this extreme heat event. One man died due to exposure to excessive heat in Prince William County, VA. The man was reported to be a construction worker.

At the end of the month, mainly on the 27th, a strong cold front moved across the region and caused severe thunderstorms to develop. The cold front, combined with a moist and unstable airmass, triggered widespread showers and storms. The strongest of the activity downed trees and powerlines, and produced a few instances of very large hail (up to the size of golf balls near Laytonsville in Montgomery County, MD). In addition, intense lightning occurred with some of the thunderstorms and ignited fires in several communities.

August:

Significant local storm damage occurred between the 5th to the 9th across our region, due to a cold front which moved east from the Appalachian Mountains, and then stalled across the mid-Atlantic, and interacted with a very warm, moist and unstable airmass. On the 5th and 7th, Special Marine Warnings were issued for portions of the Tidal Potomac and Chesapeake Bay. Wind gusts were measured between 35 to 43 knots from strong thunderstorms moving over the waters. A waterspout was also reported on the Chesapeake Bay near Bloody Point on the 8th. Between the 5th and 8th, scattered events of trees and powerlines downed due to severe wind gusts of 58 mph or more across eastern WV, MD, and northern VA. Large hail also occurred. On the 7th in Allegany County, MD, golf ball

sized hail was reported, and on the 6th in Albemarle County, VA, penny sized hail was reported. On the 9th, flooding was a major problem in lower southern MD, due to slow moving storms and the stalled frontal boundary. In Leonardstown in St. Mary's County, MD, flash flooding occurred in the town, and significant damage was reported to buildings at the College of Southern Maryland. It is unusual to have flash flooding occur in lower southern Maryland, however with localized rainfall of greater than 5 inches in less than 2 hours, rapid local water rises attributed to the flash flooding event, even though there is little topography and the soil is sandy in the area. Two other reports of flooding occurred on the 6th and 8th, in Albemarle and Prince William Counties, VA, respectively.



A picture of a waterspout courtesy Greg Witmyer

Between the 27th to the 30th, very active weather occurred across the Sterling area of responsibility. On the 27th, Hurricane Katrina had not yet made landfall along the central Gulf Coast, however the large wind circulations associated with this massive hurricane caused warm and moist southerly winds to impact the mid-Atlantic. On the 27th, a waterspout occurred near Miller's Island and Baltimore in the Chesapeake Bay. Please see the attached photo of the waterspout. One person was killed during heavy rain on a Maryland road near Frederick. A string of severe thunderstorm wind damage was investigated by NWS officials in northern Maryland on the 30th, in Frederick County, from near Brunswick north to Middletown and Emmitsburg. Winds were estimated between 55 to 65 mph. Winds on the eastern side of Hurricane Katrina across northern Virginia were favorable for the formation of isolated tornadoes on August 30. Surveys were conducted by NWS officials across the area. All of the tornadoes were rated either F0 or F1 on the Fujita scale. A total of 6 tornadoes occurred in the foothills of the Blue Ridge in northern Virginia. Although property damage was considerable from these tornadoes, there were no reports of serious injuries or deaths attributable to the storms.

Fire Weather - Another side of forecasting

Chris Strong

NWS Sterling has the responsibility to forecast the weather for many different groups of people across the Mid-Atlantic. In addition to the more high profile divisions of public, aviation, and marine forecasting, fire weather is an important, yet often unseen facet of our forecast operations.

For public forecasting, much of the emphasis is on temperature and precipitation chances, while for the aviation community, cloud heights and visibilities are primary players. Mariners want to know how strong the winds will be and how high the waves might be, but what do the fire managers need to know?

Fire fighters, and more specifically those fire fighters in the various government forestry and parks agencies, need to know how to keep wildfires from developing and spreading. Sometimes in order to prevent wildfires from becoming a problem, they even have to start controlled fires that can serve the natural purpose that fires serve, without the massive property damage that can come about from large uncontrolled wildfires. In addition to available things to burn (fuel) and the geography of the land, weather conditions play a large role in how well fires can start and how they spread once they have ignited.

Near the surface, the two weather factors that figure in most prominently are moisture and winds. Moisture can be further broken down into two things, the humidity of the air, and the dampness of the fuels to burn (which relates heavily to season and the amount of past rainfall). The wind near the surface is typically the most important weather factor to the fire managers. This is because a wind speed and direction will determine how quickly and in which direction a fire will spread. A strong wind combined with dry conditions can allow a smoldering, unattended campfire to turn into a multi acre wildfire relatively quickly.

However, it is not just weather conditions at ground level that fire managers are interested in. The temperature profile of the atmosphere, or how temperature varies with height, is also important. How the wind and humidity vary through the atmosphere also play a role. Why would weather high in the atmosphere matter for ground fires? These factors can determine how efficiently large fires can burn. A quick drop off in temperature with height (instability), combined with dry air, can produce almost a 'chimney effect' with large fires. The effect can be as impressive as the difference between how a fire burns in your fireplace with the chimney open and closed. The direction smoke travels, and how well it is dispersed in the atmosphere, are controlled by wind and temperature profiles as well. This can determine whether or not a controlled burn will be set, based on whether the smoke will seriously affect nearby towns.

For our region, there are two main high seasons for wildfires, the spring and fall. During the summer, green vegetation tends to hold enough moisture to suppress fires, although drought can diminish this effect. During the winter, snow cover and less sunshine tend to keep the ground damp. Spring and fall, however, typically have a number of breezy, dry days combined with dry fuels.

So how are things looking now? The fall fire season for 2005 was shaping up to be an active one, as dry conditions were instilling a drought over the area during the late summer and early fall. However, a massive rain storm over October 7th and 8th brought several inches of rain to the region, and put a damper on the expected busy season.

High fire danger can be warned on by the National Weather Service just like all of our other weather hazards. There is a watch and a warning for dangerous fire conditions - the Fire Weather Watch and the Red Flag Warning. When low humidity, dry conditions, and strong winds combine, these watches and warnings can be issued to warn that fires can develop and spread rapidly.

Upcoming Marine Users Committee Meeting

Steve Rogowski

A group of mariners with interests along the tidal Potomac River and the Maryland portion of the Chesapeake Bay have been invited to attend a meeting at the National Weather Service in early December. Members of the Coast Guard, Power Squadron, Commercial Fisherman, Charter Boat, and local marinas will join representatives from other NOAA offices and the Baltimore/Washington National Weather Service.

The goal of the meeting is to strengthen our relationship with the local marine community by gaining feedback in our products and services, and through discussion of weather related problems local mariners face.

Attendees will be asked to fill out a comprehensive survey designed to convey their marine interests and use of our products. A review of our products and services, explanation of how a forecast is prepared, an interactive brainstorming session and office tour are planned.

NWS Sterling Winter Related Product Criteria

Winter Storm Outlook: Issued as a Special Weather Statement, this outlook provides a generalized progression of expected conditions from a developing winter storm in the 3 to 5 day range.

Winter Storm Watch: Issued 24 to 48 hours prior to the following forecasted conditions: an average of 5 inches of snow/sleet within a 12 hour period, glaze accumulation of one quarter inch or more, or enough ice to cause damage to trees and power lines in a 12 hour period, or a life threatening or damaging combination of snow and/or ice accumulation with wind in a 12 hour period.

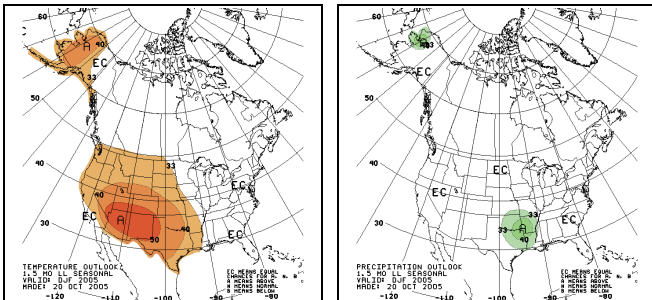
Winter Storm Warning: Same criteria as Winter Storm Watch, when currently occurring or forecasted to occur during the current day.

Blizzard Warning: Snow or blowing snow reducing visibilities to a quarter mile or less for 3 hours or longer with 35 mph winds or higher.

Winter Weather Advisory: Issued when the following are currently occurring or forecasted to occur during the day: an average of 2 inches of snow accumulation, any ice accumulation, or blowing snow significantly reducing visibilities.

December-January-February Outlook

NOAA's National Weather Service Climate Prediction Center created these December-January-February temperature and precipitation outlooks during late October. 'EC' means Equal Chance, 'A' stands for Above Normal, while 'B' is Below Normal. These are probabilistic forecasts; the forecast probability anomaly is the difference between the actual forecast probability of the verifying observation falling in a given category and its climatological value.



Climate Prediction Center outlooks, discussions and explanations are available at:
<http://www.cpc.noaa.gov/products/predictions/90day/>

Upcoming SKYWARN Classes

For more information check out the SKYWARN website:
<http://www.erh.noaa.gov/er/lwx/skywarn/classes.html>

BASICS I SKYWARN CLASS

This class is essential for becoming a SKYWARN Spotter. It is a 3-hour class that covers the basics of how SKYWARN and the National Weather Service operate, what you need to report and how, and how to spot severe thunderstorms and tornadoes. This class is a pre-requisite for all other classes.

BASICS II SKYWARN CLASS

This class is an optional sequel to the Basics I class. It is 2 1/2 hours long. It is good for spotters who need a refresher or feel they want additional information and training. It reviews the basic spotting techniques and covers more information about thunderstorms and Doppler radar. You must have taken Basics 1 to attend this class.

WINTER STORM CLASS

This is an optional 2 1/2 hour class that is occasionally offered seasonally (November - January). Its focus is on the Mid-Atlantic snow storms and nor'easters. It looks at the frequency and history of the storms, how they form and the difficulties in forecasting them, how to be prepared, how to measure snow and ice, and how SKYWARN operates during a winter event. You must have taken Basics I to attend.



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